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(71) Applicant: **KAO CORPORATION**
1-14-10, Nihonbashikayaba-cho
Chuo-ku Tokyo(JP)

(72) Inventor: **Uemura, Tomohiro**
1-3, Asahigaoka-cho
Hanamigawa-ku, Chiba-shi, Chiba(JP)
Inventor: **Tanahashi, Masanori**
3-20-1, Innai
Funabashi-shi, Chiba(JP)
Inventor: **Muroi, Yoshiyuki**
2606-6, Oaza-Akabane, Ichikai-machi
Haga-gun, Tochigi(JP)
Inventor: **Kono, Yoshinao**
1-4, Minatokonyamachi
Wakayama-shi, Wakayama(JP)

(74) Representative: **Wächtershäuser, Günter, Dr.**
Tal 29
W-8000 München 2(DE)

(54) Keratotic plug remover.

(57) A keratotic plug remover composition comprising a polymer compound having a salt forming group is disclosed. The composition according to the invention can effectively remove keratotic plugs in the skin pores, so that the conspicuousness of the skin pores is mitigated and clean and healthy skin pores can be maintained. The composition does not hurt the skin.

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BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to a keratotic plug remover which excellently removes keratotic plugs formed in the pores of the skin, and a method of removing keratotic plugs from the skin utilizing such a keratotic plug remover.

Discussion of the Background:

Having conspicuous pores in the skin is a serious skin problem, especially for women, and is mainly caused by keratotic plugs formed in the pores of the skin. Keratotic plugs are dead epidermal cells keratinized together with sebaceous matters and dirt which plug the pores of the skin. If proper treatment is not given, not only conspicuous pores but also various skin troubles result. Accordingly, removal of keratotic plugs is advisable in view of the health and beauty of the skin.

Ordinary face detergents, make-up removers, however, cannot sufficiently remove the keratotic plugs.

Pack preparations, which are applied to the skin and peeled off after dried, and which generally contain a nonionic polymer such as polyvinyl alcohol and polyvinyl pyrrolidone as a major component of a film forming agent, are still not sufficiently effective for removing dirt from the skin pores and especially for r moving keratotic plugs.

Thus, there remains a need for a keratotic plug remover which can effectively remove keratotic plugs formed in the pores of the skin and a method of removing keratotic plugs from the skin utilizing such plug removers.

SUMMARY OF THE INVENTION

Accordingly, it is one object of the present invention to provide novel keratotic plug removers which effectively remove keratotic plugs from the skin.

It is another object of the present invention to provide a method for removing keratotic plugs from the skin which utilized such keratotic-plug removers.

These and other objects which will become apparent during the following detailed description have been achieved by the inventors discovery that a keratotic plug remover which comprises a synthetic polymer having a salt forming group can effectively remove keratotic plugs and dirt from the pores of the skin.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The salt forming group of the polymer which is useful in the present invention is not particularly limited as long as it can form a salt in the presence of an acid or a base, and anionic, cationic and amphoteric groups are suitable. Examples of the salt forming group are carboxyl, sulfonic acid group, sulfuric acid residual group ($-OSO_3H$), phosphoric acid residual group ($-OPO_3H_2$), nitric acid residual group ($-NO_2$), amino group, ammonium group, and the like. Two or more of these groups may be present in one compound.

The polymer compound which is useful in the present invention is preferably water-soluble from the viewpoint of good appearance, but it is not necessarily water-soluble for the purpose of achieving the effects of this invention. The compounds which are not water-soluble may take the form of dispersion and/or emulsion.

Examples of the polymers useful in the present invention include: hyaluronic acid, sodium hyaluronate, sodium chondroitin sulfate which are mucopolysaccharides; alginic acid, sodium alginate, ammonium alginate, sodium carboxylmethylcellulose, and carboxymethyl amylose which are hemicelluloses. These are of natural origin or semi-synthesized polymers. In this invention, synthesized polymers are more preferable. Examples of the synthesized polymers include (A) polymers of one or more monomers listed in (1) to (3) below, (B) copolymers of the monomers as listed in (1) to (3) and another monomer which has no salt forming group, such as vinyl esters of aliphatic carboxylic acid such as vinyl acetate, (meth)acrylic esters such as methyl methacrylate, alkyl vinyl ethers such as methyl vinyl ether, N-vinyl cyclic amides such as N-vinylpyrrolidone, styrene and alkyl-substituted styrene, and (C) mixtures of the above-mentioned polymers.

(1) Anionic monomers:

Acrylic acid (AA), Methacrylic acid (MA), Maleic acid, itaconic acid and the like, which are unsaturated

carboxylic acid monomers or their anhydrides or their salts;
Styrene sulfonic acid, 2-Acrylamide-2-methyl propane sulfonic acid (AMPS) and the like, which are unsaturated sulfonic acid monomers or their salts;
Vinyl phosphonic acid, Acid phosphoxyethyl (meth)acrylate and the like, which are unsaturated phosphoric monomers.
(2) Cationic monomers
Dimethylaminoethyl acrylate (DMAEA), Dimethylaminoethyl methacrylate (DMAEMA), Dimethylaminopropylacrylamide (DMAPAAm), Dimethylaminopropyl methacrylamide (DMAPMAAm), and the like, which are (meth)acrylamides or (meth)acrylic acid esters having a dialkylamino group;
Dimethylaminostyrene (DMASt), Dimethyaminomethylstyrene (DMAMSt) and the like, which are styrenes having a dialkylamino group;
4-Vinyl pyridine, 2-vinyl pyridine and the like, which are vinyl pyridines;
Quaternarized products of these with a known quatenarizing agent such as alkyl halide, benzyl halide, alkyl or aryl sulfonic acid, or dialkyl sulfate.
(3) Amphoteric monomers
N-(3-sulfopropyl)-N-acryloyloxyethyl-N,N-dimethylammonium betaine, N-(3-sulfopropyl)-N-methacroylamidepropyl-N,N-dimethylammonium betaine, N-(3-carboxymethyl)-N-methacroylamidepropyl-N,N-dimethylammoniumbetaine, N-carboxymethyl-N-methacroyloxyethyl-N,N-dimethylammonium betaine.

When the salt forming group of these polymers is not ionized, it is preferred to ionize it via neutralization with known acids such as hydrochloric acid and sulfuric acid which are inorganic acids; acetic acid, propionic acid, lactic acid, succinic acid, glycol acid which are organic acids, or with known bases such as triethylamine, trimethylamine which are tertiary amines; ammonia; or sodium hydroxide.

Among the mentioned polymer compounds, preferred ones in view of the mildness to the skin and high effectiveness for removing keratotic plugs are polymers of one or more cationic monomers, copolymers between one of these polymers and an amphoteric monomer or a monomer having no salt forming groups, and mixtures of these polymers.

Preferable examples of the cationic monomers include dimethylaminoethylacrylate (DMAEA), dimethylaminoethylmethacrylate (DMAEMA), dimethylaminopropylacrylamide (DMAPAAm), dimethylaminopropyl methacrylamide (DMAPMAAm) and the like, which are (meth)acrylic esters or (meth)-acrylamides having a dialkylamino group; and quaternary compound of them which are quaternarized with a known quaternarizing agent such as alkyl halide, benzyl halide, alkyl or aryl sulfonic acid or dialkyl sulfate. Among them, especially preferred are dimethylaminoethylmethacrylate (DMAEMA) and its quaternarized products; quaternarized products of dimethylaminopropyl methacrylamide (DMAPMAAm); polymers of one or more of these monomers; copolymers between one or more of these monomers and the above-mentioned monomers; and mixtures thereof.

The molecular weight (weight average) of these polymers is preferably in the range of from 10,000 to 1,500,000, and especially from 100,000 to 1,000,000. Molecular weights less than 10,000 will result in insufficient film strength and easily breakable films upon peeling-off. Polymers having a molecular weight over 1,500,000 are difficult to manufacture.

The preferable amount of the polymer to be incorporated into the keratotic plug remover preparation according to the invention is from 0.01 to 70% by weight, preferably 5 to 40% by weight based on the total weight of the preparation.

The above-mentioned synthesized polymers are used as dissolved in a solvent. The solvent useful in this invention is volatile and is not particularly limited as long as it can stably dissolve the polymers and is safe to the skin. Examples of such solvents include water, ethanol, isopropyl alcohol (IPA) and the like. They are used singly or in combination. The amount of the solvent is modified depending on the properties of the polymer compounds, optional ingredients and forms of the preparation, and is generally from 30 to 99.99% by weight, and preferably from 60 to 95% by weight, based on the total weight of the composition.

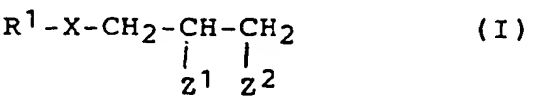
The efficacy of the keratotic plug remover of this invention is enhanced when a pigment is further incorporated together with the mentioned polymers. The pigment is not particularly limited, and both organic and inorganic pigments can be used. Examples of the inorganic pigments are zinc oxide, titanium oxide, silica, alumina, barium sulfate, zirconium oxide, calcium carbonate, calcium silicate, ceramics, hydroxyapatite, boron nitride, sericite, mica, talc, kaolin, montmorillonite, hectorite, saponite, black iron oxide, yellow iron oxide, red iron oxide, prussian blue, ultramarine, carbon black, pearlescent pigments and so on. Examples of the organic pigments are silk powders, cellulose powders, poly(meth)acrylic ester resins, polyamide resins, polyolefin resins, polyimide resins, polyurethane resins, polyester resins, polyether resins, polyvinyl chloride resins, urea resins, polyformaldehyde resins, polycarbonate resins, poly-

vinylacetate resins, polyvinylidene chloride resins, polyacrylonitrile resins, polysulfone resins, polystyrene resins, polyurea resins, silicone resins, melamine resins, polytetrafluoroethylene resins, rake pigments and azo dyes.

The particle size of the pigments is from 0.001 to 1000 micrometers, and preferably from 0.01 to 500 micrometers. Particle size of less than 0.001 micrometer is not preferred because good dispersibiiity cannot be obtained. Particle size over 1000 micrometers is not preferred, either, because of an unfavorable, sensation to the skin. The mentioned pigments can be used as a complex or a mixture of one or more, if desired. The amount of the pigment is from 0.1 to 70% by weight, preferably from 1 to 40% by weight based on the total weight of the preparation.

When an oil component is further incorporated together with the polymers, the keratotic plug remover of this invention can achieve excellent removal of keratotic plugs without giving irritation to the skin. This is because the strength of the film at which it breaks upon peeling-off can be controlled by the oil component.

The oil component which is useful in this invention is a glycerol derivative represented by formula (I):



$$R^1\text{-}X\text{-}CH_2\text{-}\underset{Z^1}{CH}\text{-}\underset{Z^2}{CH_2} \qquad (I)$$

wherein one of Z^1 and Z^2 represents R^2-Y- and the other represents a hydroxyl group or R^3-Y-, and R^1, R^2 and R^3 independently represent a hydrocarbon group, the total carbon number of which ranges from 13 to 40, and the hydrocarbon group may or may not be substituted by a silicone residual group, X and Y independently represent an oxygen atom or a group -COO-, (a carboxyl group in which the C atom is bonded to R^1, R^2, or R^3). Other oily ingredients which are generally incorporated into cosmetic preparations can also be used. Examples of the oil component which is useful in this invention include vegetable oils such as avocado oil, tsubaki oil, macadamia nut oil, olive oil and jojoba oil; animal oils and fats such as beef tallow, lard and egg yolk fat; aliphatic acids such as oleic acid and isostearic acid; alcohols such as hexadecyl alcohol and oleyl alcohol; esters such as cetyl 2-ethylhexanoate, 2-ethylhexyl palmitate, 2-octyldodecyl myristate, neopentyl glycol di-2-ethyl hexanoate, 2-octyldodecyl oleate, isopropyl myristate, glycerol triisostearate, mono-2-ethylhexanoic glyceryl di-paramethoxycinnamate; and hydrocarbons such as dimethylpolysiloxane, dimethyl cyclopolysiloxane, methylphenyl polysiloxane, methylhydrogen polysiloxane, octamethyl cyclotetrasiloxane, octamethyl cyclopentasiloxane, decamethylcyclopentasiloxane, liquid paraffin, squalane, vaseline and solid paraffin.

Among these oil components, glycerol derivatives of formula (1) which are liquid at 20 °C are preferred, and particularly, tri-2-ethylhexanoic glycerol, 1-isostearoyl-3-myristoyl glycerol, 2-ethylhexanoic diglyceride, 1-hexyl-3-undecamethylhexasiloxy propynyl glycerol are most preferred.

The amount of the oil components to be incorporated into the keratotic plug remover of this invention is from 0.5 to 30% by weight, preferably, 1 to 15% by weight based on the total weight of composition.

The keratotic plug remover preparation of this invention can further contain optional ingredients which are generally incorporated into cosmetic preparations. Examples of such optional ingredients include ethylene glycol, diethylene glycol, triethylene glycol and higher polyethylene glycols; propylene glycol, dipropylene glycol and higher polypropylene glycols, 1,3-butylene glycol, 1,4-butylene glycol and other butylene glycols; glycerol, diglycerol and higher polyglycerols; sugaralcohols such as sorbitol, mannitol, xylitol and maltitol; ethylene oxides (hereinafter referred to as EO) such as glycerols; addition products of propylene oxide (hereinafter referred to as PO); EO or PO adducts of sugaralcohols; monosaccharides such as galactose, glucose and fructose, and their EO or PO adducts; polysaccharides such as maltose and lactose, and their EO or PO adducts (polyols); surfactants such as POE alkyl ethers (POE is polyoxyethylene), POE branched alkyl ethers, POE sorbitan esters, POE glycerol fatty acid esters, POE hydrogenated castor oil, sorbitan ester, glycerol fatty acid esters and polyglycerol fatty acid ester; drugs such as vitamins, antiphlogistics, activators, UV absorbers and the like; water-swelling clay minerals such as montmorillonite, saponite and hectorite; polysaccharides such as carageenan, xanthangum, sodium alginate, pullulan, methylcellulose, carboxymethylcellulose, hydroxyethylcellulose and hydroxypropylcellulose; synthetic polymers such as carboxyvinyl polymers, polyvinyl pyrrolidones and polyvinyl alcohols. They are incorporated into the preparation of the present invention in such amounts that will not impede the effects of the invention. In particular, when polyols are used, they are preferably incorporated by 0.01 to 50% by weight based on the total preparation.

The keratotic plug remover according to this invention may take a form of a poultice using cotton cloth, rayon cloth, tetron cloth, nylon cloth, either woven or non-woven, or using a plastic film sheet, beside pack

preparations.

The keratotic plug remover of this invention can be manufactured according to conventional processes for the manufacture of ordinary packs and poultice.

The manner of removing keratotic plugs by the use of the keratotic-plug remover of the invention is the same as the manner of using ordinary packs and poultice. Namely, when a pack preparation is used, it is first applied to the part of the skin which has keratotic plugs, particularly likely to the nose, chin and forehead, and after dried, it is peeled off.

Since the keratotic plug remover of this invention effectively removes keratotic plugs, the conspicuousness of the skin pores is mitigated, skin pores are maintained clean, and healthy skin can be obtained. Further, the remover of this invention does not hurt the skin.

Other features of the invention will become apparent in the course of the following descriptions of exemplary embodiments which are given for illustration of the invention and are not intended to be limiting thereof.

EXAMPLES

Where not otherwise indicated all amounts in the examples are in terms of % by weight based on the total weight of the composition.

Example 1:

Keratotic plug removers were prepared according to the pack preparation method mentioned below using the polymers listed in Table 1. A panel washed their face and used the preparation on their faces at an application rate of 0.1 ml/cm^2. The conditions of use were a temperature of 25 • C, 50% humidity for 30 minutes. When 30 minutes had passed, the pack was peeled off. The ratio of removal of the keratotic plugs was calculated according to the following equation for evaluation.

$$\text{Removal ratio of keratotic plugs} = \frac{\text{number of keratotic plugs adhered on 1cm}^2\text{pack}}{\text{number of keratotic plugs existing in the 1 cm}^2\text{ wing skin of nose}} \times 100$$

The results are also shown in Table 1.

Evaluation:

A: over 20% removal ratio of keratotic plugs
B: 5 to 20% removal ratio of keratotic plugs
C: less than 5% removal ratio of keratotic plugs

Preparation:

Polymer	15 to 20% by weight
Glycerol	5
HCO60 (polyoxyethylene hydrogenated castor oil 60EO adduct)	1
Ethanol	5
Perfume	0.5
Antiseptic	suitable amount
Purified water	67.5 to 72.5
Total	100.0

Table 1

	Polymers	Anionic/ Cationic	Evaluation (Removal of keratotic plugs)
IONIC	Poly 2-acrylamide-2-methylpropane sulfonate (AMPS) (MW: 500,000)	anionic	A
	Polymethacroyloxymethyl succinate (MW: 200,000)	anionic	A
	Polymer of Na·styrene sulfonic acid (NaSS) (MW: 100,000)	anionic	A
	Polymer of methacrylic acid (MAA) (MW: 200,000)	anionic	A
	Copolymer of NaSS/MAA (1:1) (MW: 400,000)	anionic	A
	Polymethacroyloxyethyl trimethyl ammonium chloride (QDM) (MW: 400,000)	cationic	A
	Polymethacroyloxyethyl triethyl ammonium diethyl sulfate (DEAMA-DES) (MW: 300,000)	cationic	A
	Polymethacrylamidepropyl trimethyl ammonium chloride (NAPTAC, MW: 300,000) / polyacrylamidepropyl trimethyl ammonium chloride (DMAPAAm-Q, MW: 300,000) copolymer (8:2 by molar ratio)	cationic	A
NONIONIC	Polyvinyl alcohol (PVA) (MW: 100,000)	-	C
	Polyethylene oxide (PEO) (MW: 1,000,000)	-	C
	Pullulan (MW: 70,000)	-	C
	Hydroxyethylcellulose (HEC) (MW: 100,000)	-	C
	Polyvinyl pyrrolidone (PVP) (MW: 600,000)	-	C

Example 2:

Keratotic plug removers were prepared using the polymers listed in Table 2, and the removal ratio of keratotic plugs and the pain at the time of peeling-off were checked.

The polymers were individually prepared into an aqueous 20-30% by weight solution, and members of the panel used in the same manner as in Example 1.

Removal ratio of keratotic plugs:

See the equation in Example 1.

Evaluation:

(Removal ratio of keratotic plugs)

A: 35% or more
B: 20 to 34%
C: 5 to 19%
D: less than 5%

(Pain at the time of peeling-off)

slight pain: +
considerable pain: + +

Table 2

Polymers	Anionic/ Cationic	Removal of Keratotic plugs	Pain upon peeling-off
Poly-2-acrylamide-2-methylpropane sulfonate (AMPS) (MW: 500,000)	Anionic	B	++
Polymethacryloyloxy methyl succinate (MW: 200,000)	Anionic	B	+
Polymer of Na-styrene sulfonic acid (NaSS) (MW: 100,000)	Anionic	A	++
Methacrylic acid (MAA) polymer (MW: 200,000)	Anionic	B	++
NaSS/MAA copolymer (1:1) (MW: 400,000)	Anionic	A	++
Polymethacryloyloxyethyl trimethylammonium chloride (QDM) (MW: 400,000)	Cationic	A	+
Polymethacrylamidepropyl trimethylammonium chloride (MAPTAC) (MW: 300,000)	Cationic	A	+
MAPTAC (MW: 300,000)/polyacrylamidepropyl trimethyl ammonium chloride (DMAPAAm-Q) (MW: 300,000) copolymer (8:2)	Cationic	A	+
MAPTAC (MW: 300,000)/QDM (MW: 400,000) mixture	Cationic	A	+

Example 3:

Keratotic plug removers having the formulations as in Table 3 were prepared according to the conventional manner, and the keratotic plug removing performance was evaluated. The results are shown in

Table 4.

Evaluation method:

Panel members washed their faces and applied keratotic plug removers onto their cheeks (0.1 ml/cm^2). The application was allowed to set at 25 • C, humidity 50% for 30 minutes, and subsequently the pack film was peeled off. The number of the members who used an invention product A on their left cheek and an invention product B on their right cheek was the same as the number of the members who used an invention product B on their left cheek and an invention product A on their right cheek.

The panel members evaluated the removers by answering "Invention product A removed better", "Invention product A and Invention product B were almost the same concerning the removal performance" or "Invention product B removed better", and their percentages were obtained.

Table 3

Components (% by weight)	Invention products A			Invention products B	
	1	2	3	1	2
Poly-2-acrylamide-2-methylpropane sulfonate (AMPS) (MW: 500,000)	25	25	-	25	-
Polymethacroyloxyethyltrimethyl ammonium chloride (QDM) (MW: 400,000)	-	-	25	-	25
Silica (av. particle size = 5 micrometers)	-	-	10	-	-
Zinc oxide (av. particle size: 0.04 micrometers)	3	-	-	-	-
Sericite (long axis: 5 to 10 micrometers)	-	10	-	-	-
HCO40 (Polyoxyethylene hydrogenated castor oil 60 EO adduct)	3	3	3	3	3
Glycerol	5	5	5	5	5
Perfume	0.5	0.5	0.5	0.5	0.5
Antiseptic	suitable amount				
Purified water	balance				

Table 4

Left (Right) - Right (Left)	Invention product A removed better	Invention products A and B are similar	Invention product B removed better
Invention product A1 - Invention product B1	90	10	0
Invention product A2 - Invention product B1	90	10	0
Invention product A3 - Invention product B2	80	20	0

Example 4:

The keratotic plug removers as formulated in Table 5 were prepared according to the conventional manner.

The obtained keratotic plug removers were used by a panel consisting of 20 members as in the same manner described in Example 1. The pain upon peeling-off was evaluated with the criteria below. The results are shown in Table 5. Concerning the keratotic plug removal, all preparations removed well.

Evaluation:

O: No pain felt
X: Pain felt

Table 5

Components (% by weight)	Invention products C			Invention products D	
	1	2	3	1	2
Poly-2-acrylamide-2-methylpropane sulfonate (AMPS) (MW: 500,000)	25	25	-	25	-
Polymethacroyloxy ethyl triammonium chloride (QDM) (MW: 400,000)	-	-	25	-	25
Tri-2-ethyl hexanoic glycerol	3	-	3	-	-
2-Ethylhexanoic diglyceride	-	3	-	-	-
Glycerol	5	5	5	5	5
HC040 (Polyoxyethylene hydrogenated castor oil 60 EO adduct)	1	1	1	1	1
Squalane	1	1	1	-	-
Ethanol	5	5	5	5	5
Perfume	0.5	0.5	0.5	0.5	0.5
Antiseptic	suitable amount				
Purified water	balance				
Pain when peeled off	O	O	O	X	X

Example 5:

The keratotic plug removers as formulated in Table 6 were prepared according to the conventional manner.

The obtained keratotic plug removers removed keratotic plugs effectively without giving pains at the time of peeling off.

Table 6

Components (% by weight)	Invention products C												
	4	5	6	7	8	9	10	11	12	13
Polymethacrylamidepropyl trimethylammonium chloride (MAPTAC) (MW: 500,000)									10	10
Polymethacryloyloxy ethyl trimethylammonium chloride (QDM) (MW: 400,000)							10	10		
Na·Styrene sulfonic acid / Methacrylic acid copolymer (MW: 400,000)	25									
Poly 2-acrylamide-2-methylpropane sulfonate (AMPS) (MW: 500,000)		30				20				
Polymethacrylamide propyl trimethylammonium chloride (MAPTAC) (MW: 50,000)			35					20		20
Polymethacryloyloxy ethyl trimethylammonium chloride (QDM) (MW: 70,000)				30	20		20		20	
Polyvinyl alcohol (MW: 30,000)					5	5				
PEG 200 (polyethylene glycol 200)	5	5	5	5	3	3	3	3	3	3
HCO 40 (Polyoxyethylene hydrogenated castor oil 40 EO adduct)	1	1	1	1	1	1	1	1	1	1
Squalane	1	1	1	1	1	1	1	1	1	1
2-ethylhexanoic diglyceride	3				2		3	3	3	3
Tri-2-ethylhexanoic glycerol	1	2								
1-Hexyl-3-undecamethylhexasiloxane propynyl glycerol				3		2		2		2
1-isostearoyl-3-myristoylglycerol		2	3				3		3	
Silica				10						
Sericite			10							
Perfume	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Antiseptic	← suitable amount →									
Water ~100%	← balance →									

Example 6:

A keratotic plug remover having the following formulation was prepared.

Polymethacryloyloxy trimethyl ammonium chloride (QDM) (MW: 400,000)	27.0 wt.%
Sorbitol	3.0
Sericite	3.0
Ethanol	5.0
Antiseptic	suitable amount
Water	balance

Example 7:

A keratotic plug remover having the following formulation was prepared.

Polymethacryloyloxy trimethyl ammonium chloride (QDM) (MW: 250,000)	27.0 wt.%
Polyoxyethylene hydrogenated castor oil (E.O. 20)	2.0
Squalane	0.5
1-Isostearoyl-3-myristoyl glycerol (DGMI)	1.5
86% Glycerol	2.0
Propylene glycol	1.0
Sericite	3.0
Ethanol	5.0
Antiseptic	suitable amount
Water	balance

Example 8:

A keratotic plug remover having the following formulation was prepared.

Polymethacryloyloxy trimethyl ammonium chloride (QDM) (MW: 200,000)	15.0 wt.%
Polymethacrylamidepropyl trimethyl ammonium chloride (MAPTAC) (MW: 300,000)	15.0
Polyoxyethylene hydrogenated castor oil (E.O. 40)	1.5
Squalane	0.5
2-Ethylhexanoic triglyceride	2.0
Sorbitol	3.0
Kaolin	7.0
Titanium oxide	2.0
Ethanol	5.0
Antiseptic	suitable amount
Water	balance

Claims

1. A keratotic plug remover composition, comprising a polymer compound having a salt forming group.

2. The keratotic plug remover composition as claimed in Claim 1, wherein said polymer compound is a synthetic polymer.

3. The keratotic plug remover composition as claimed in Claim 1, wherein said salt forming group is selected from the group consisting of a carboxyl group, sulfonic acid group, sulfuric acid residual group, phosphoric acid residual group, nitric acid residual group, amino group and an ammonium group.

4. The keratotic plug remover composition as claimed in Claim 1, wherein said polymer compound having a salt forming group has a molecular weight of from 10,000 to 1,500,000.

5. The keratotic plug remover composition as claimed in Claim 1, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight based on the total weight of said composition.

6. A keratotic plug remover composition, comprising a polymer compound having a salt forming group and a solvent.

7. The keratotic plug remover composition as claimed in Claim 6, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight, and the amount of said solvent is 30 to 99.99% by weight based on the total weight of said composition.

8. A keratotic plug remover composition, comprising a polymer compound having a salt forming group and a pigment.

9. The keratotic plug remover composition as claimed in Claim 8, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight, and the amounts of said pigment is 0.1 to 70% by weight based on the total weight of said composition.

10. A keratotic plug remover composition, comprising a polymer compound having a salt forming group, a pigment and a solvent.

11. The keratotic plug remover composition as claimed in Claim 10, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight, the amount of said pigment is 0.1 to 70% by weight and the amount of said solvent is 29.99 to 99.89% by weight based on the total weight of said composition.

12. A keratotic plug remover composition, comprising a polymer compound having a salt forming group and an oil component.

13. The keratotic plug remover composition as claimed in Claim 12, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight and the amount of said oil component is 0.5 to 30% by weight, based on the total weight of said composition.

14. A keratotic plug remover composition, comprising a polymer compound having a salt forming group, an oil component and a solvent.

15. The keratotic plug remover composition as claimed in Claim 14, wherein the amount of said polymer compound having a salt forming group is 0.01 to 70% by weight, the amount of said oil components is 0.5 to 30% by weight and the amount of said solvent is 29.99 to 99.49% by weight based on the total weight of said composition.

16. A keratotic plug remover composition, comprising a polymer compound having a salt forming group, a pigment and an oil component.

17. A keratotic plug remover composition comprising a polymer compound having a salt forming group, a pigment, an oil component and a solvent.

18. A method for removing keratotic plugs which comprises applying a keratotic remover composition as claimed in Claims 1, 6, 8, 10, 12, 14, 16 or 17 onto the skin, and peeling off after the composition is dried.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 10 8097

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	PARFUMS, COSMETIQUES, AROMES, no. 72, December 1986, pages 61-64, Paris, FR; A. JULIEN et al.: "Les masques de beauté" * Page 61, column 3, paragraph 4 - page 63, column 1, fin. * ---	1-6,18	A 61 K 7/48
X	EP-A-0 323 652 (EXOVIR, INC.) * Whole document * ---	1-7,12-15,18	
X	US-A-4 126 142 (SAUTE) * Whole document * ---	1-7,12-15,18	
X	PATENT ABSTRACTS OF JAPAN, vol. 4, no. 186 (C-36)[668], 20th December 1980; & JP-A-55 127 312 (HADASHIYOUHIN KAGAKU KAIHOU KENKYUSHO) 02-10-1980 * Abstract * ---	1-6,18	
X	PATENT ABSTRACTS OF JAPAN, vol. 12, no. 242 (C-510)[3089], 8th July 1988; & JP-A-63 35 511 (SHISEIDO CO., LTD) 16-02-1988 * Abstract * ---	1-7,18	TECHNICAL FIELDS SEARCHED (Int. Cl.5) A 61 K
X	PATENT ABSTRACTS OF JAPAN, vol. 12, no. 279 (C-517)[3126], 1st August 1988; & JP-A-63 57 508 (MIKIMOTO SEIYAKU) 12-03-1988 * Abstract * ---	1-6,12-15,18	
X	GB-A-2 144 133 (L'OREAL) * Examples 2,4,7,D * ---	1-18	
X	WO-A-9 002 774 (R. GARRIDO) * Whole document * -----	1-6,18	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	04-09-1992	COUCKUYT P.J.R.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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